

## EAST Search History

| Ref # | Hits     | Search Query  | DBs  | Default Operator | Plurals | Time Stamp          |
|-------|----------|---|--|------------------|---------|---------------------|
| S1    | 2812     | (Group III nitride or semiconductor near3 nitride or AlGaInN or AlGaIn or aluminum gallium indium nitride or aluminum gallium nitride) with (CVD or PVD or chemical vapor or physical vapor or sputter\$3)            | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ              | ON      | 2009/03/26<br>10:04 |
| S2    | 29399173 | @ad< "20041122"   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ              | ON      | 2009/03/26<br>10:05 |
| S3    | 1836     | S1 and S2   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ              | ON      | 2009/03/26<br>10:05 |
| S4    | 709      | (Group III nitride or semiconductor near3 nitride or AlGaInN or AlGaIn or aluminum gallium indium nitride or aluminum gallium nitride) with (PVD or physical vapor or sputter\$3)                                     | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ              | ON      | 2009/03/26<br>10:16 |
| S5    | 447      | S4 and S2   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ              | ON      | 2009/03/26<br>10:18 |
| S6    | 0        | (Group III nitride or semiconductor near3 nitride or AlGaInN or AlGaIn or aluminum gallium indium nitride or aluminum gallium nitride) and (vertical grow\$3 adj5 (larger or greater or more) adj5 lateral grow\$3)   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ              | ON      | 2009/03/26<br>10:39 |
| S7    | 0        | (Group III nitride or semiconductor near3 nitride or AlGaInN or AlGaIn or aluminum gallium indium nitride or aluminum gallium nitride) and (vertical grow\$3 adj10 (larger or greater or more) adj10 lateral grow\$3) | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ              | ON      | 2009/03/26<br>10:39 |

|     |      |  |   |     |    |                  |
|-----|------|--|---|-----|----|------------------|
| S8  | 0    | (vertical grow\$3 adj10 (larger or greater or more) adj10 lateral grow\$3)   | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | ADJ | ON | 2009/03/26 10:40 |
| S9  | 1244 | (vertical adj10 (larger or greater or more) adj10 lateral)   | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | ADJ | ON | 2009/03/26 10:40 |
| S10 | 15   | (Group III nitride or semiconductor near3 nitride or AlGaInN or AlGaIn or aluminum gallium indium nitride or aluminum gallium nitride) and (vertical adj5 (larger or greater or more) adj5 lateral ) | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | ADJ | ON | 2009/03/26 10:40 |
| S11 | 40   | "6582986"  | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | ADJ | ON | 2009/03/26 11:23 |
| S12 | 40   | ("4498093"   "4971928"   "5145809"   "5962875"   "6043146"   "6051849"   "6121121"   "6139629"   "6177688"   "6225650"   "6413627").PN. OR ("6582986").URPN.   | US-PGPUB; USPAT; USOCR                    | ADJ | ON | 2009/03/26 14:13 |
| S13 | 43   | ("4498093"   "4971928"   "5145809"   "5962875"   "6043146"   "6051849"   "6121121"   "6139629"   "6177688"   "6225650"   "6413627").PN. OR ("6582986").URPN.   | US-PGPUB; USPAT; USOCR                    | ADJ | ON | 2009/06/22 10:21 |
| S14 | 0    | (vertical grow\$3 adj10 (width near5 (greater or higher or larger or wider)) adj7 lateral grow\$3)   | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | ADJ | ON | 2009/06/22 12:04 |
| S15 | 0    | (vertical grow\$3 with (width near5 (greater or higher or larger or wider)) with lateral grow\$3)  | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | ADJ | ON | 2009/06/22 12:04 |
| S16 | 0    | (vertical grow\$3 with (width near7 (greater or higher or larger or wider)) with lateral grow\$3)  | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | ADJ | ON | 2009/06/22 12:04 |

|     |     |   |  |     |     |                     |
|-----|-----|---|--|-----|-----|---------------------|
| S17 | 174 | ("4127792"   "4522661"  <br>"4651407"   "4865685"  <br>"4876210"   "4912064"  <br>"4946547"   "5122845"  <br>"5389571"   "5397736"  <br>"5549747"   "5710057"  <br>"5760426"   "5786606"  <br>"5815520"   "5877070"  <br>"5880485"   "Re34861").<br>PN. OR ("6051849").<br>URPN.  | US-PGPUB;<br>USPAT; USOCR                          | ADJ | ON  | 2009/06/22<br>14:24 |
| S18 | 9   | ("4971928"   "5814533"  <br>"5962875"   "6051849"  <br>"6121121"   "6139629"  <br>"6153010"   "6177688"  <br>"6413627").PN. OR<br>("6955977").URPN.   | US-PGPUB;<br>USPAT; USOCR                          | ADJ | ON  | 2009/06/22<br>15:44 |
| S19 | 492 | (438/481).CCLS.   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | OR  | OFF | 2009/06/22<br>15:56 |
| S20 | 11  | ("4971928"   "5962875"  <br>"5970314"   "6051849"  <br>"6121121"   "6139629"  <br>"6177688").PN. OR<br>("6812053").URPN.  | US-PGPUB;<br>USPAT; USOCR                          | ADJ | ON  | 2009/06/22<br>15:58 |
| S21 | 6   | ("4971928"   "5962875"  <br>"6051849"   "6121121"  <br>"6139629"   "6177688").<br>PN. OR ("6803602").<br>URPN.  | US-PGPUB;<br>USPAT; USOCR                          | ADJ | ON  | 2009/06/22<br>15:59 |
| S22 | 19  | (US-20030180580-\$).did.<br>or (US-6582986-\$ or US-<br>7101444-\$ or US-7115486-<br>\$ or US-7208393-\$ or US-<br>6921673-\$ or US-6890785-<br>\$ or US-6225650-\$ or US-<br>6121121-\$ or US-6051849-<br>\$ or US-7176497-\$ or US-<br>7154128-\$ or US-7141444-<br>\$ or US-7052979-\$ or US-<br>6967122-\$ or US-6955977-<br>\$ or US-6881651-\$ or US-<br>6815241-\$).did. or (WO-<br>0127980-\$).did. | US-PGPUB;<br>USPAT;<br>DERWENT                     | ADJ | ON  | 2009/06/23<br>09:06 |
| S23 | 10  | S22 and (InAlGa <sub>N</sub> or<br>AlGaIn <sub>N</sub> or AlInGa <sub>N</sub> or<br>aluminum indium gallium<br>nitride or indium<br>aluminum gallium nitride<br>or aluminum gallium<br>induim nitride)  | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON  | 2009/06/23<br>09:07 |

|     |     |  |  |     |     |                     |
|-----|-----|--|--|-----|-----|---------------------|
| S24 | 2   | ("6940103").PN.  | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | OR  | OFF | 2009/06/23<br>09:45 |
| S25 | 20  | (US-20030180580-\$).did.<br>or (US-6582986-\$ or US-<br>7101444-\$ or US-7115486-<br>\$ or US-7208393-\$ or US-<br>6921673-\$ or US-6890785-<br>\$ or US-6225650-\$ or US-<br>6121121-\$ or US-6051849-<br>\$ or US-7176497-\$ or US-<br>7154128-\$ or US-7141444-<br>\$ or US-7052979-\$ or US-<br>6967122-\$ or US-6955977-<br>\$ or US-6881651-\$ or US-<br>6815241-\$ or US-6940103-<br>\$).did. or (WO-0127980-\$).<br>did. | US-PGPUB;<br>USPAT;<br>DERWENT                     | ADJ | ON  | 2009/06/23<br>10:01 |
| S26 | 10  | S25 and (bandgap or band<br>gap)   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON  | 2009/06/23<br>10:01 |
| S27 | 19  | (active (layer or region) or<br>quantum well or MQW or<br>SQW or QW) near5<br>(smaller or lower) near5<br>(bandgap or band gap or<br>band-gap) near5 (cladding<br>or contact) (layer or film<br>or material)   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON  | 2009/06/23<br>10:21 |
| S28 | 209 | ((active (layer or region)<br>or quantum well or MQW<br>or SQW or QW) near5<br>(smaller or lower) near5<br>(bandgap or band gap or<br>band-gap)) with (benefit<br>\$4 or increas\$3 or decreas<br>\$3 or provid\$3 or reduc\$3<br>or advantag\$4 or improv<br>\$3 or serve or help or<br>enhanc\$3)  | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON  | 2009/06/23<br>11:16 |
| S29 | 2   | ((active (layer or region)<br>or quantum well or MQW<br>or SQW or QW) near5<br>(smaller or lower) near5<br>(bandgap or band gap or<br>band-gap)) adj10<br>(InAlGa <sub>N</sub> or AlGa <sub>In</sub> N or<br>Al <sub>In</sub> GaN or aluminum<br>indium gallium nitride or<br>indium aluminum gallium<br>nitride or aluminum<br>gallium induim nitride)  | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON  | 2009/06/23<br>11:23 |

|     |    |   |  |     |    |                     |
|-----|----|---|--|-----|----|---------------------|
| S30 | 3  | "20040079960"   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON | 2009/06/23<br>11:35 |
| S31 | 72 | (substrate) near5 (compris<br>\$4 or made) near5<br>(InAlGaN or AlGaInN or<br>AlInGaN or aluminum<br>indium gallium nitride or<br>indium aluminum gallium<br>nitride or aluminum<br>gallium induim nitride)   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON | 2009/06/23<br>14:30 |
| S32 | 22 | (US-20030180580-\$ or US-<br>20040079960-\$).did. or<br>(US-6582986-\$ or US-<br>7101444-\$ or US-7115486-<br>\$ or US-7208393-\$ or US-<br>6921673-\$ or US-6890785-<br>\$ or US-6225650-\$ or US-<br>6121121-\$ or US-6051849-<br>\$ or US-7176497-\$ or US-<br>7154128-\$ or US-7141444-<br>\$ or US-7052979-\$ or US-<br>6967122-\$ or US-6955977-<br>\$ or US-6881651-\$ or US-<br>6815241-\$ or US-6940103-<br>\$ or US-7071015-\$).did.<br>or (WO-0127980-\$).did.   | US-PGPUB;<br>USPAT;<br>DERWENT                     | ADJ | ON | 2009/06/23<br>14:30 |
| S33 | 0  | S32 and S31   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON | 2009/06/23<br>14:30 |
| S34 | 24 | (US-20030180580-\$ or US-<br>20040079960-\$ or US-<br>20060078024-\$).did. or<br>(US-6582986-\$ or US-<br>7101444-\$ or US-7115486-<br>\$ or US-7208393-\$ or US-<br>6921673-\$ or US-6890785-<br>\$ or US-6225650-\$ or US-<br>6121121-\$ or US-6051849-<br>\$ or US-7176497-\$ or US-<br>7154128-\$ or US-7141444-<br>\$ or US-7052979-\$ or US-<br>6967122-\$ or US-6955977-<br>\$ or US-6881651-\$ or US-<br>6815241-\$ or US-6940103-<br>\$ or US-7071015-\$).did.<br>or (WO-0127980-\$ or US-<br>20010053618-\$).did. | US-PGPUB;<br>USPAT;<br>DERWENT                     | ADJ | ON | 2009/06/23<br>15:07 |
| S35 | 0  | S34 and (buffer layer<br>near7 (change or<br>changing) near7<br>(thickness or growth or<br>growing) direction)  | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON | 2009/06/23<br>15:08 |

|     |     |  |  |     |    |                     |
|-----|-----|--|--|-----|----|---------------------|
| S36 | 0   | S34 and (buffer layer near7 (change or changing) near7 (thickness or growth or growing))   | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON | 2009/06/23<br>15:08 |
| S37 | 203 | (buffer layer near7 (change or changing) near7 (thickness or growth or growing))           | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON | 2009/06/23<br>15:08 |
| S38 | 5   | (buffer layer near7 (change or changing) near7 (thickness or growth or growing) direction) | US-PGPUB;<br>USPAT;<br>USOCR; EPO;<br>JPO; DERWENT | ADJ | ON | 2009/06/23<br>15:08 |

**6/ 30/ 2009 12:06:19 PM**

**C:\ Documents and Settings\ bfox2\ My Documents\ EAST\ Workspaces\ 10597575.wsp**